

REMARKS

Claim Rejections – 35 USC §112

Claim 4 has been rejected as being indefinite under 35 USC §112. Claim 4 has been amended to address an antecedent basis informality and is now believed to be in proper form. Accordingly, withdrawal of the rejection of claim 4 as being indefinite is respectfully requested.

Claim Rejections – 35 USC §103

Claims 19, 2-8, 11-17, 20 and 22-29 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,552,163 to Biancalana et al. (the “Biancalana reference”) in combination with U.S. Patent No. 5,339,843 to Benedict et al. (the “Benedict reference”). Additionally, claims 10 and 30 were rejected under 35 U.S.C. §103(a) as being unpatentable over the Biancalana reference in combination with the Benedict reference, and further in view of U.S. Patent No. 6,029,681 to Gaydoul et al. (the “Gaydoul reference”).

Independent Claims 19, 24 and 26

Independent claims 19, 24 and 26 are apparatus claims and each recites, among other elements and features, a cleaning solution comprising a mixture of compressed air and an alcohol. Independent claims 19, 24 and 26 also recite other elements and features associated with the cleaning apparatus, such as a housing defining a cleaning chamber, a mixer for forming a cleaning solution, at least one nozzle for directing the cleaning solution onto the part, a sensor for detecting a presence of the part, and a valve for selectively delivering the cleaning solution to the nozzle. The Applicant respectfully submits that the combinations of features recited in each of the independent claims 19, 24 and 26 are patentable for at least the reasons set forth below.

As indicated above, independent claims 19, 24 and 26 have been rejected under 35 U.S.C. §103(a) as being unpatentable over the Biancalana reference in combination with the Benedict reference. As set forth on pages 3 and 4 of the Office Action, the Biancalana reference is asserted to disclose a cleaning device including the elements recited in independent claims 19, 24 and 26 for providing pressurized air/water to the nozzles 10 via a water-air mixing unit. The

Biancalana reference admittedly does not disclose a cleaning solution comprising a mixture of compressed air and an alcohol. However, the Office Action states that the Benedict reference discloses that "a cleaning solution which is known to provide proper cleaning action comprises alcoholic liquids", and that "[i]t would have been obvious [to use] the alcohols taught by Benedict et al. in the Biancalana et al. cleaning apparatus to enhance cleaning and to obtain the claimed apparatus . . . because it is well know in the art that the alcohols can be used as cleaning and disinfecting solution." It is therefore asserted that "one skilled in the art would use the alcohols taught by Benedict et al. instead of the disinfectant taught by Biancalana et al. to obtain the claimed apparatus." The Applicant respectfully disagrees with this assertion for at least the following reasons.

The seminal case directed to application of 35 USC §103 is Graham v. John Deere, 383 U.S. 1, 17-18, 148 USPQ 459 (1966), from which four familiar factual inquiries have resulted. The first three are directed to prior art evaluation, and the last is directed to secondary considerations. See Manual of Patent Examining Procedure (MPEP) §2141. From these inquiries, the initial burden is on the Examiner to establish a *prima facie* case of obviousness. "First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." MPEP §2142 (citing In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)). Correspondingly, "[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." MPEP §2142 (citing W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983)).

The Applicant respectfully submits that a *prima facie* case of obviousness has not been established with regard to the rejection of independent claims 19, 24 and 26 and the claims depending therefrom. As indicated above, independent claims 19, 24 and 26 each recite "a cleaning solution comprising a mixture of compressed air and an alcohol". Even assuming

arguing that the Biancalana reference discloses the other elements and features recited in independent claims 19, 24 and 26, there is not teaching or suggestion that a cleaning solution comprised of a mixture of compressed air and an alcohol is provided to clean dental instruments. To the contrary, the “cleaning solution” disclosed in the Biancalana reference is pressurized water and air. Although a disinfectant is also provided to sterilize the dental instruments, the disinfectant is not used in the actual cleaning of the dental instrument. (See Abstract). Further, as stated in the Office Action, the Biancalana reference also fails to teach or suggest the use of any type of alcohol to clean the dental instruments.

While the Biancalana reference fails to teach the use of a cleaning solution comprising a mixture of compressed air and alcohol, it has been asserted that the use of alcohols taught by the Benedict reference in combination with the Biancalana cleaning apparatus would have been obvious to arrive at the claimed invention. However, as indicated above, in order to establish a *prima facie* case of obviousness, “there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.” MPEP §2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)).

Although the Benedict reference appears to disclose the use of an alcohol or an alcohol or an alcohol blend in association with a controlled agitation cleaning system, the cleaning system disclosed in the Benedict reference is significantly and distinguishably different from the Biancalana cleaning apparatus. Specifically, the Benedict reference discloses a container 16 holding a quantity of cleaning fluid 14 (e.g., an alcohol) within which the electronic item 11 to be cleaned is immersed. The container 16 includes a number of nozzles 24 that generate fluid streams 28 that agitate the cleaning fluid 14. As an initial matter, the controlled agitation system disclosed in the Benedict reference is an immersion-type system wherein the parts to be cleaned are placed into a bath of alcohol 14. However, the cleaning apparatus disclosed in the ‘163 patent utilize a spray-type system wherein a stream of pressurized water and air is sprayed onto the part to be cleaned. The structural and operational differences between an immersion-type cleaning system and a spray-type cleaning system are significant. As a result, one of skill in the

art would not necessarily be motivated to utilize a cleaning fluid used in association with an immersion-type cleaning system in a spray-type cleaning system.

As also discussed above, in establishing a *prima facie* case of obviousness, "[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." Notably, the Benedict reference expressly states that "it is important that the nozzles all be placed so that the agitation streams emitted therefrom are each immersed in the fluid and do not appreciably roil or otherwise disturb the fluid surface 14a, so as to minimize combustible vapor production". (Col. 3, ll. 9-13; emphasis added). Additionally, the agitation system incorporates various features into its design to eliminate flammability hazards. The statement in the Benedict reference that it is particularly important to keep the agitation nozzles immersed in fluid "to minimize combustible vapor production" expressly teaches away from the assertion set forth in the Office Action that it would have been obvious to use the alcohol taught by the Benedict reference in combination with the Biancalana spray-type cleaning system to arrive at the invention recited in independent claims 19, 24 and 26. Importantly, replacing the pressurized water/air solution disclosed in the Biancalana spray-type cleaning system with a pressurized alcohol/air solution would generate an airborne combustible vapor, which is directly contrary to the teachings of the Benedict reference (i.e., to minimize combustible vapors). Additionally, as indicated above, the agitation system disclosed in the Benedict reference incorporates various features into its design that are meant to eliminate flammability hazards (e.g., elimination of electrical-driven parts, use a special lid to shield the alcohol from ignition sources and to avoid electro-static discharge). However, the Biancalana cleaning apparatus includes numerous electrical devices in close proximity to the cleaning chamber, which is once again directly contrary to the teachings of the Benedict reference. Accordingly, the Benedict and Biancalana references each include disclosure that teaches away from the concept of combining the references in a manner to arrive at the presently claimed invention.

Finally, distinct advantages are realized by using the particular cleaning solution recited in independent claims 19, 24 and 26 in association with the cleaning apparatus. For example, the use of cleaning solution comprised of a mixture of compressed air and an alcohol provides

cleaning capabilities that are not realized by the cleaning system disclosed in the Benedict reference or any of the cited patent references. Specifically, alcohol is itself an excellent cleaner, but when mixed with compressed air, the resulting stream of cleaning solution has even greater cleaning ability due to the impact force provided by the airborne solution stream against the part. This advantage is clearly not provided by the cleaning system disclosed in the Benedict reference, which does not utilize compressed air to provide high impact cleaning, but instead utilizes low impact fluid agitation to reduce disturbance of the fluid surface 14a and to minimize combustible vapor production. Additionally, as mentioned above, the “cleaning solution” disclosed in the Biancalana reference is pressurized water/air. As should be appreciated, water does not have the same cleaning abilities as alcohol. As also mentioned above, the Biancalana reference fails to teach or suggest that an alcohol is provided as part of cleaning mixture or solution. Although the Biancalana reference does disclose the use of a disinfectant to sterilize the dental instruments, the disinfectant is not used in the actual cleaning of the dental instrument, and therefore can not fairly be said to comprise a “cleaning solution”.

Another advantage provided by the cleaning solution recited in independent claims 19, 24 and 26 is the minimization of fluidic waste material. Notably, alcohol has a relatively high evaporation rate compared to other fluids, such as water. The evaporation rate is even further enhanced when the alcohol is mixed with compressed air to form a cleaning solution. As a result, the use of a cleaning solution comprised of mixture of compressed air and alcohol tends to reduce the amount of fluidic waste material generated by the claimed cleaning apparatus. However, the Biancalana reference is clearly not concerned with the reduction of fluidic waste in that pressurized water is used as the means for cleaning the dental instruments, wherein “[t]he discharge of dirty water used for washing is carried on through the waste-pipe”. (See Abstract). Indeed, the amount of fluidic waste generated by the Biancalana cleaning apparatus is substantial. Thus, one of skill in the art would not be motivated to use a cleaning solution comprised of alcohol/compressed air in association with the Biancalana cleaning apparatus since minimization of waste water is obviously not of particular concern.

In summary, the Benedict reference is directed to an immersion-type cleaning system wherein the parts to be cleaned are placed in an alcohol bath. Additionally, the Benedict

reference expressly states that combustible vapor production is to be avoided (col. 3, ll. 9-13), and that various features are incorporated into the cleaning system to eliminate flammability hazards. Accordingly, it would not have been obvious for one of skill in the art to combine the teachings of the Benedict reference with the electrically controlled, spray-type cleaning system disclosed in the Biancalana reference to arrive at the presently claimed invention. Instead, the Benedict and Biancalana references actually teaches away from the assertion of combining their teachings to arrive at the presently claimed invention.

For at least the reasons discussed above, the Applicant submits that the subject matter recited in independent claims 19, 24 and 26 is patentable over the Biancalana reference, the Benedict reference, or any of the references of record, whether considered alone or in combination with one another. Accordingly, the Applicant respectfully requests withdrawal of the rejection of independent claims 19, 24 and 26.

Dependent Claims 2-8, 10-17, 20, 22-23, 25 and 27-30

Claims 2-8, 10-17 and 20 depend either directly or indirectly from independent claim 19 and are patentable for at least the reasons supporting the patentability of independent base claim 19. Claims 22, 23 and 25 depend directly from independent claim 24, and are patentable for at least the reasons supporting the patentability of independent base claim 24. Claims 27-30 depend directly from independent claim 26, and are patentable for at least the reasons supporting the patentability of independent base claim 26.

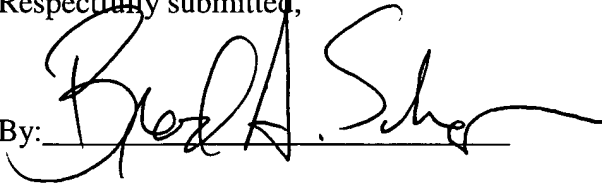
Additionally, further reasons support the patentability of the claims depending from independent claims 19, 24 and 26. For example, dependent claims 20 and 25 have been amended to recite that the alcohol in the cleaning solution is industrial grade isopropyl alcohol. Indeed, there would be no motivation, and very much a disincentive, to use industrial grade isopropyl alcohol in association with an apparatus for cleaning/sterilizing dental instrumentation, such as the cleaning apparatus disclosed in the Biancalana reference.

CONCLUSION

In view of the foregoing remarks, it is respectfully submitted that the Applicant's application is now in condition for allowance with pending claims 2-8, 10-17, 19, 20 and 22-30.

Reconsideration of the subject application is respectfully requested. Timely action towards a Notice of Allowability is hereby solicited. The Examiner is encouraged to contact the undersigned by telephone to resolve any outstanding matters concerning the subject application.

Respectfully submitted,

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